

NOTE

REDISCOVERY, STATUS, AND PRESERVATION OF THE
ENDANGERED KANKAKEE GLOBE MALLOW
(*ILIAMNA REMOTA*) IN INDIANA

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Iliamna remota Greene [formerly *Sphaeralcea acerifolia* Nutt., *S. remota* (Greene) Fernald, and *Phymosia remota* (Greene) Britton] was first discovered by E. J. Hill, growing on a small, gravelly island (Langham Island) in the Kankakee River near Alton, Illinois, on June 29, 1872 (Sherff 1946; Strausbaugh and Core 1932). This island is, presumably, the only naturally occurring locality for *I. remota*. The phytogeographic origins of this exclusive, natural population are unknown.

On July 4, 1944, Dr. S. W. Witmer of Goshen College found four colonies of the species growing "2 miles east of New Paris, Elkhart County, Indiana" (*S. W. Witmer s.n.*, F 68972). The plants were found at a site where the railroad crosses the Elkhart River (Figure 1).

In addition to the disjunct Indiana population, another colony of *Iliamna remota* was found on June 28, 1964, near Glen Wilton, Virginia, where U.S. 220 crosses the Chesapeake & Ohio Railroad and the James River (Keener 1964). Another Virginia locality for *Iliamna* was found by J. H. Browning on Peters Mountain at Narrows, Virginia (*E. E. Sherff s.n.*, F). These specimens, however, are considered by some to be separate species (*I. corei* Sherff). According to Sherff (1949), the species are distinguished by the fact that the flowers of *I. remota* are fragrant and those of *I. corei* are not (suggesting chemical differences). The morphology of the leaves of the two taxa is also somewhat different. The blades of *I. corei* are narrower and have a "terminal lobe oblong or subcuneately narrowed below and subtended with sharp sinuses," whereas the leaves of *I. remota* are broader with shallower, less pronounced sinuses (Sherff 1946).

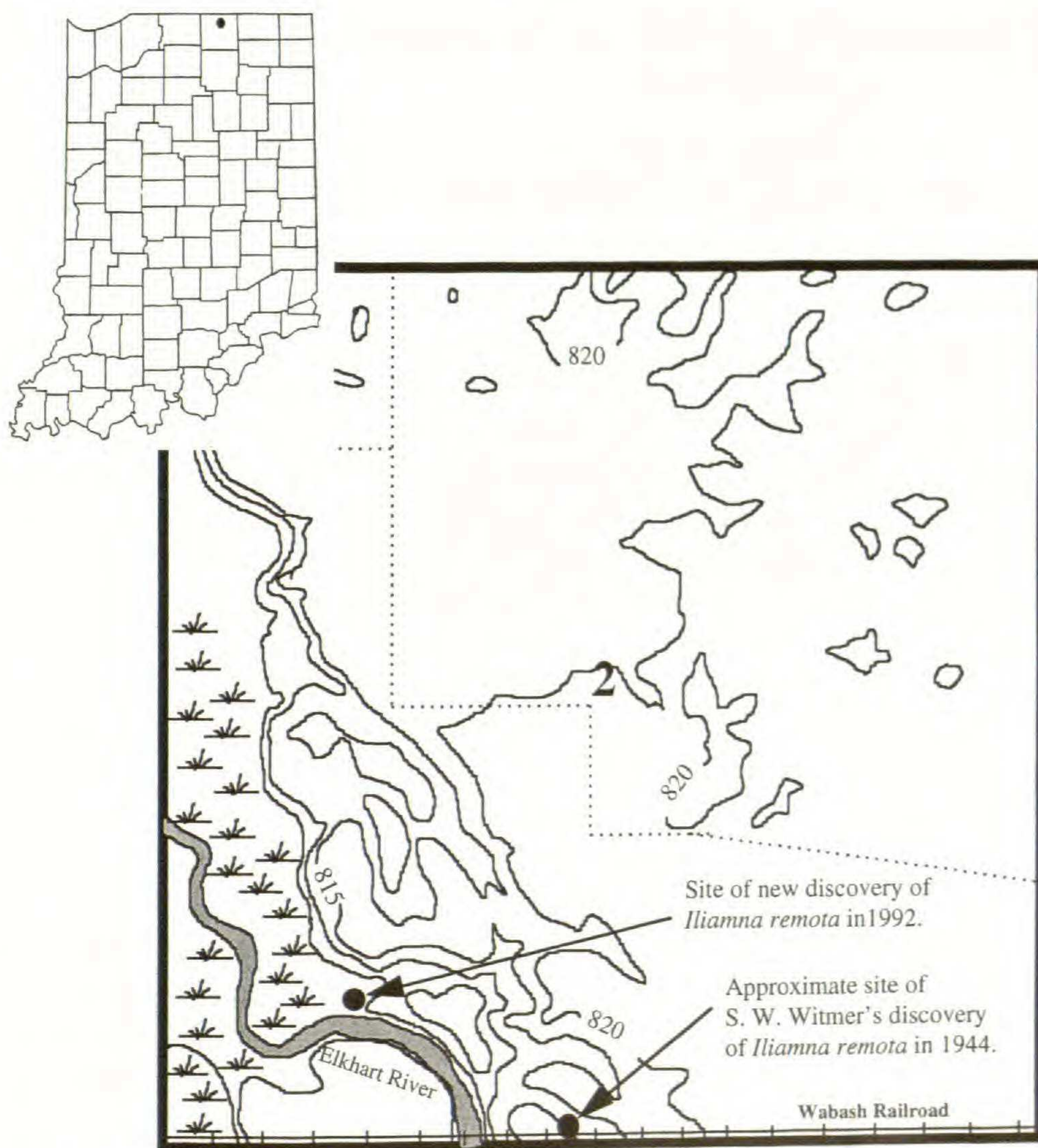


Figure 1. Map of Section 2, T35N, R6E, Elkhart County, Indiana, showing the location of historic (1944) and extant colonies of *Iliamna remota*.

The origins of the Indiana and Virginia populations of *Iliamna remota* are apparently anthropogenic. According to Sherff (1949) the Wildflower Preservation Society of Chicago (circa 1919), recognizing that *Iliamna* was in danger of extinction because of its isolation, obtained a liberal quantity of seeds from Langham Island and scattered them far and wide, perhaps from windows of moving trains, in the hope of spreading the species. The presence of both the Indiana and Virginia stands near railroads seems to substantiate this.

Although *Iliamna remota* is listed as Endangered in the state

of Indiana, it is curiously and inexplicably absent from the U.S. Federal Register of endangered plants.

NATURAL HABITAT OF *ILIAMNA REMOTA*

The only known natural population of *Iliamna remota*, on Langham Island, is, geologically, a relatively recent establishment. The island occurs within the glaciated region created by the Laurentide Ice Sheet of Wisconsin age. The late-glacial Kankakee Flood, circa 15,000 yrs. BP, would have been the last major geologic disturbance, and the plants must have become established sometime after this event (Schwegman 1984). Schwegman (1984) suggests two possible origins of the plant: 1) it originated from migrants of other species [belonging to the genera *Iliamna* or *Sphaeralcea*] from the Rocky Mountains that speciated rather quickly in response to different environmental conditions, or 2) it may have been transported to the area from cultivars derived by American Indians.

The natural habitat of *Iliamna* is partially to fully open areas with a well drained, often gravel substrate, harboring woodland and prairie herbs (but lacking coarse grasses), with a sparse scattering of bur oak (*Quercus macrocarpa*), red oak (*Q. rubra*), and bitternut hickory (*Carya cordiformis*). It thrives in savannas, old fields, or where frequent natural disturbances (e.g., fire, erosion, ice-scour, wind-throws) push back succession and hinder the growth of high shrubs. Schwegman (1991) provides a detailed account of the flora, history, and physiography of the type locality.

Although the disjunct populations of *Iliamna remota* may be a result of human activity, they should be regarded as significant populations worthy of protection. Seeds of the species may have been spread throughout the railroad and highway corridors in the east, but the only known places where they became established were in two sites: one in Indiana and one in Virginia. These feral populations, because of their apparent habitat specificity, provide insight into the natural history of the species.

STATUS AND PRESERVATION OF THE INDIANA POPULATION

Original site of discovery. An attempt to preserve the Indiana locality resulted in a lease agreement between the Indiana

chapter of The Nature Conservancy and the railroad company. A parcel of land surrounding the *Iliamna* was set aside as The Kankakee Mallow Nature Preserve. Lack of management of invasive vegetation at the site reduced the *Iliamna* population until July 4, 1988, when it was reported extirpated at the site (Paul T. Slabaugh, pers. comm.). Careful inspection of the site by the authors in 1992 resulted in the same conclusion.

Discovery of a new colony. On August 7, 1992, seven colonies were found outside of the original preserve (*M. E. Jacobs s.n.*, F 2112195). These colonies were growing along the border of a cornfield 312 m north of the Elkhart River railroad bridge and about 600 m from the site of the original colonies of *Iliamna* reported by S. W. Witmer in 1944. Seeds from these new colonies were collected by the primary author for studies on germination. All seeds that were neither frozen nor scarified with a scalpel did not germinate, six percent of seeds which were frozen but not scarified germinated, sixty-nine percent of seeds subjected to scarification without freezing germinated, and ninety-four percent of seeds subjected to both freezing and scarification germinated. The seed coat remained tenaciously around the cotyledons of germinating seeds and required physical removal. This suggests that a more thorough reduction in the strength of the seed coat is required for natural germination. John E. Schwegman (pers. comm.), formerly of the Illinois Department of Conservation, has found that fire is needed to scarify seeds so they will germinate in the wild. Baskin and Baskin (1997) also reported the need for physical scarification or fire (in *I. corei*, at least), but found that no seeds germinated as a result of freezing alone (compare to 6% germination in the *I. remota* seeds from Indiana).

Evidence has shown that many Malvaceae seeds are viable for as long as 40 years (Hill 1982a, b). Baskin and Baskin (1997) report that seeds of *Iliamna corei* (a close relative of *I. remota*) remained viable for more than three years. Seeds from the Elkhart County *I. remota* were determined to remain viable for at least four years, as germination of the seeds collected from the new locality in 1993 was successful as of summer, 1997. The resulting plants produced seed in the first season.

Rediscovery of Witmer's colony. In the late summer of 1993, two living stems from the original Witmer site, 219 m east

of the east end of the railroad bridge, were rediscovered on gravel in a tangle of *Hypericum perforatum*, *Daucus carota*, and *Prunus padus* (all of which are exotic species in Indiana). Seeds from this original locality were collected, germinated, and cultivated in the garden of M. E. Jacobs, Goshen, Indiana (early accounts of *Iliamna* in cultivation are given by Wadmond 1932). In the fall of 1993, the two stems at the Witmer locality were destroyed by farming operations. In an effort to preserve the original feral population, mature specimens from the germinated seeds in Jacobs's garden were transplanted to property owned by The Friends of the Pumpkinvine Nature Trail in an area along the abandoned corridor of the Pumpkinvine Railroad in a sunny spot between State Road 4 and the entry gate of the trail (south side of trail).

RECOMMENDATIONS

While it is very fortunate that the Indiana population of *Iliamna remota* has managed to survive for almost 80 years, it is clear that management will be required to insure its long term survival and viability at the site. Lack of management and education of local residents in the past has almost led to the demise of this unique plant existing in a locality with significant historical and ecological value. Transplants made to private properties managed by interested and knowledgeable botanical enthusiasts have saved the population at least momentarily, but carefully guided management (including periodic, local burning), as well as educational outreach by recognized state and national organizations, will be a more long term assurance of the survival of the population. Ecological and molecular research, including DNA analysis of the three main populations in the U.S., is recommended for the future.

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